UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/540,950	04/19/2006	Charles Zdzislaw Loboz	610-L/10/300,000	3795

27276   7590   05/13/2009
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ART UNIT	PAPER NUMBER
2128	

MAIL DATE	DELIVERY MODE
05/13/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

PTOL-90A (Rev. 04/07)

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _27 June 2005_.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1-12_ is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _1-12_ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on _27 June 2005_ is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)
2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3)☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _06/27/2005_.

4)☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5)☐ Notice of Informal Patent Application
6)☐ Other: _____.

DETAILED ACTION

1. Claims 1-12 have been presented for examination based on the application filed on 06/27/2005.

2. Claims 1, 4-5, 9-12 are objected to.

3. Claims 6-11 are rejected under 35 USC 101.

4. Claims 6-9 are rejected under 35 USC 112 ¶2nd.

5. Claims 1, 6 and 11-12 are rejected under 35 USC 102(e) anticipated by applicant's own admission in Background specification [0002] citing PCT/09/110,000 filed on March 14, 2002.

6. Claims 1-12 are rejected under 35 USC 103.

7. This action is made Non-Final.

Claim Interpretation

8. Claim 6 discloses means for language where the specification is silent on structural features which would implement the function for the means. The best interpretation is understood to be software components for each means plus function (See Drawings Fig.1 element 32).

Specification

9. Specification Pg. 1 discloses PCT/09/110,000 which are background art. This is not a valid PCT number and US application 09/110,000 does not correspond to the background art. Applicant is requested to correct this.

Claim Objections

10. Claim 1 lacks proper punctuation marks and indentation. For example, the preamble does not end is colon and the steps do not end in semi-colon. Further the "...further steps of" are not indented.

11. Claims 4-5, 9-10 and 11-12 are objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim *cannot depend from any other multiple dependent claim.* See MPEP § 608.01(n). Accordingly, the claims have not been further treated on the merits.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

12. Claims 6-11 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Regarding Claim 6-10

Claim 6 is nonstatutory because is software per se. None of the dependent claim defines a structure of a system to cure this deficiency. The specification is silent on describing a specific hardware for each claimed means for limitation. At best, "resource" could be hardware or software (Specification: [0024]). Similarly "transaction counter" could be hardware or software (Specification: [0029]). Further see Fig.1 disclosing 30-32 and no other specific means other than a general purpose computer (Fig.1 elements 12-28).

Regarding Claim 11

Claim 11 is also rejected for claiming software per se.

Claim Rejections - 35 USC § 112¶2nd

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

13. Claims 6-9 elements *"means for obtaining utilization data"*, *"means for applying a linear least squares algorithm"*, *"means for providing a matrix"*, *'means for storing the sum of the cross-products"*, *"means for, at selected time intervals, applying a further mathematical algorithm"*, and *"means for dividing the computation into separate sub-parts"* are means (or step) plus function limitations that invokes 35 U.S.C. 112, sixth paragraph. However, the written description fails to clearly link or associate the disclosed structure, material, or acts to the claimed function such that one of ordinary skill in the art would recognize what structure, material, or acts perform the claimed function. Specifically, there are no specific hardware(s) recited for each of the means for limitations in the specification. At best all these means can be attributed to software running on a general purpose computer. Please See Fig.1. Applicant is required to:

(a)   Amend the claim so that the claim limitation will no longer be a means (or step) plus function limitation under 35 U.S.C. 112, sixth paragraph; or

(b)   Amend the written description of the specification such that it clearly links or associates the corresponding structure, material, or acts to the claimed function without introducing any new matter (35 U.S.C. 132(a)); or

(c)   State on the record where the corresponding structure, material, or acts are

set forth in the written description of the specification that perform the claimed

function. For more information, see 37 CFR 1.75(d) and MPEP §§ 608.01(o) and

2181.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form

the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the
> United States before the invention thereof by the applicant for patent, or on an international application
> by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this
> title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act

of 1999 (AIPA) and the Intellectual Property and High Technology Technical

Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting

directly or indirectly from an international application filed before November 29, 2000.

Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior

to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

14. **At least Claims 1, 6 and 11-12 are rejected under 35 U.S.C. 102(e) as being**

clearly anticipated by Background of applicant's disclosure as presented in

specification [0002] citing PCT/09/110,000 filed on March 14, 2002.

The applied reference has a common inventor with the instant application. Based

upon the earlier effective U.S. filing date of the reference, it constitutes prior art

under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome

either by a showing under 37 CFR 1.132 that any invention disclosed but not

claimed in the reference was derived from the inventor of this application and is thus

not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

Specifically, the claimed invention as disclosed is also presented as background, i.e.

is admitted to be known as prior art. *Also the application disclosed in the*

specification PCT/09/110,000 filed on Mar. 14, 2002 at the United States Patent

Office – is an incorrect number or it cannot be traced. Only the admitted disclosure

form this application can be found in the Background of the instant application. See

Specification Pgs.1-3 Line 8 or in PGPUB [0002]-[0014].

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Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148

USPQ 459 (1966), that are applied for establishing a background for determining

obviousness under 35 U.S.C. 103(a) are summarized as follows:

1.   Determining the scope and contents of the prior art.
2.   Ascertaining the differences between the prior art and the claims at issue.
3.   Resolving the level of ordinary skill in the pertinent art.
4.   Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the

claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the

various claims was commonly owned at the time any inventions covered therein were

made absent any evidence to the contrary. Applicant is advised of the obligation under

37 CFR 1.56 to point out the inventor and invention dates of each claim that was not

commonly owned at the time a later invention was made in order for the examiner to

consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g)

prior art under 35 U.S.C. 103(a).

15. Claims 1-3, 6-8, and 11-12 are rejected under 35 U.S.C. 103(a) as being

unpatentable over U.S. Patent No. 6,086,618 issued to <u>Al-Hilali</u> et al, in view of

IEEE article "A Framework for Computer Performance Evaluation Using

Benchmark Sets" by Umesh Krishnaswamy et al (December 2000)

(<u>Krishnaswamy</u> hereafter).

<u>Regarding Claim 1</u>

Al-Hilali teaches a method of estimating computing system resource usage for each

transaction type (Al-Hilali: Abstract), comprising the steps of, obtaining utilization

data of a system resource for each resource type (Al-Hilali: Fig.5 Step 120 Col.8

Lines 39-40) and transaction count data for each transaction type as input data (Al-

Hilali: Fig.5 Step 116; Col.12 Lines 1-12).

Al-Hilali also teaches at selected time intervals *as execution times*, applying a

further mathematical algorithm to derive an estimate of the resource usage per

transaction type (Al-Hilali: Col.2 Lines 1-10).

Al Hilali <u>does not specifically teach</u> the limitations of applying a linear least

squares algorithm to the input data to provide an estimate of resource usage for an

individual transaction type within the computing environment, wherein the application

of the linear least squares algorithm comprises the further steps of, providing a

matrix, the size of the matrix being defined by the number of transaction types and

the number of resource types, storing the sum of the cross-products of each

resource type and each transaction type in the matrix, storing the sum of the cross-

products of each transaction type with each other transaction type in the matrix.

Krishnaswamy teaches applying a linear least squares algorithm to the input data to provide an estimate of resource usage for an individual transaction type within the computing environment *as using least square algorithm* (Krishnaswamy: Section 2.3), *where the resource utilization data is obtained from instrumentation* (Krishnaswamy: Section 2) *and the transaction count data for each transaction type is inputted in matrix form* (Krishnaswamy: Pg.1329 Section 3; Pg.1327 Col.1 workload vector formed from various transactions).

Krishnaswamy further teaches wherein the application of the linear least squares algorithm comprises the further steps of, providing a matrix, the size of the matrix being defined by the number of transaction types and the number of resource types (Krishnaswamy: Section 2.2), storing the sum of the cross-products of each resource type and each transaction type in the matrix (Krishnaswamy: Section 2.2), storing the sum of the cross-products of each transaction type with each other transaction type in the matrix (Krishnaswamy: Pg.1329 workload Section 3 with various transactions I1 and I2.), and at selected time intervals *as execution times*, applying a further mathematical algorithm to derive an estimate of the resource usage per transaction type (Krishnaswamy: Pg.1330 Col.1 ¶1-2 Pg.1332 Section 3.1.2).

It would have been obvious to one (e.g. a designer) of ordinary skill in the art at the time the invention was made to apply the teachings of Krishnaswamy to Al-Hilali to provide the details of the system performance (utilization) based on known benchmarks. The motivation to combine would have been that Krishnaswamy and

Al-Hilali are analogous art in the system performance prediction based on known

(instrumented) system performance but want to create a transaction level

performance prediction (Al-Hilali: Abstract; Krishnaswamy: Section 3.1.2; Abstract),

wherein Krishnaswamy teaches mathematical detail, of the implementation of

collecting the utilization (Section 2: instrumentation and performance vector) data

and transaction data (Section 3 Pg.1329 Col.1-2) to compute utilization/performance

and the further speeding the computation by using least square algorithm (Section

2.3).

Regarding Claim 2

Krishnaswamy teaches dividing the computation into separate sub-parts

(Krishnaswamy: Pg.1327 Col.1 where the partitioning of the instructions).

Regarding Claim 3

Al-Hilali & Krishnaswamy teach utilization data includes a resource utilization value

for each resource type for each given time interval, and the transaction count data

includes the total number of transactions executed for each transaction type in each

given time interval (Al-Hilali: Col12 Lines 1-10; Col.13 Lines 23-62; Krishnaswamy:

Pg.1329 Section 3 – each transaction type values).

Regarding Claim 6

Claim 6 discloses similar limitations as claim 1 and is rejected likewise. Al-Hilali discloses a system which implements the claimed invention having hardware and software components (Al-Hilali: Fig.1 and associated disclosure).

Regarding Claim 7-8

Claim 7-8 disclose similar limitations as claim 2-3 and are rejected similarly.

Regarding Claim 11-12

Claim 11-12 discloses similar limitation as each of the claims 1-3 and Al-Hilali discloses a computer program (Al-Hilali: Fig.1 Col.6-7) on a computer readable medium.

16. **Claims 4-5, 9-10 and 11-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over <u>Al-Hilali</u> et al, in view of <u>Krishnaswamy</u>, further in view of IEEE 1988 article "True Lattice Algorithms for Square Root Solution of Least Squares Linear Prediction Problems" by Cedric J. DEMEURE et al (<u>Demeure</u> thereafter).**

Regarding Claim 4-5

Teaching of Al-Hilali and Krishnaswamy are shown in the claim 2 or 3. Krishnaswamy teaches using the least square algorithm (Section 2.3).

Al-Hilali and Krishnaswamy do not explicitly teach the number of calculations required to produce an estimate of resource usage by transaction type *are reduced by computing a select number of cross-products from the total number of possible cross-products in the matrix and* the mathematical algorithm is the Cholesky method.

Demeure teaches the mathematical algorithm is the Cholesky method which is used to solve least square algorithm (Demeure: Pg.2313 Section III Least Square Solution). Cholesky method by definition is a fast method for computing matrix (already defined by Krishnaswamy in terms of estimate of resource usage by transaction type Section 3.1.2).

Motivation to combine Krishnaswamy to Al-Hilali is same as in claim 1.

It would have been obvious to one (e.g. a designer) of ordinary skill in the art at the time the invention was made to apply the teachings of Demeure to Krishnaswamy. The motivation to combine would have been that Demeure further teaches solving least square problems faster and is well known in the art (Demeure: 1988 publication), and both use the lattice structure (Demeure: Pg.2314 Col.1; Krishnaswamy: Section 3 context lattice).

Regarding Claim 9-10

Claims 9-10 disclose similar limitations as claim 4-5 and are rejected similarly.

Regarding Claim 11-12

Claims 11-12 discloses similar limitation as each of the claims 4-5 and Al-Hilali discloses a computer program (Al-Hilali: Fig.1 Col.6-7).

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Conclusion

17. All claims are rejected.

18. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

19. **Examiner's Note:** Examiner has cited particular columns and line numbers in the references applied to the claims above for the convenience of the applicant. Although the specified citations are representative of the teachings of the art and are applied to specific limitations within the individual claim, other passages and figures may apply as well. It is respectfully requested from the applicant in preparing responses, to fully consider the references in their entirety as potentially teaching all or part of the claimed invention, as well as the context of the passage as taught by the prior art or disclosed by the Examiner.

   In the case of amending the claimed invention, Applicant is respectfully requested to indicate the portion(s) of the specification which dictate(s) the structure relied on for proper interpretation and also to verify and ascertain the metes and bounds of the claimed invention.

Communication

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Akash Saxena whose telephone number is (571) 272-8351. The examiner can normally be reached on 9:30 - 6:00 PM M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kamini S. Shah can be reached on (571)272-2279. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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